REMARKS/ARGUMENTS

Claims 13 and 29-30 have been amended. Claims 31-42 have been added. Claims 1-42 are pending in the application.

Objections

On page 2 of the action, the drawings are objected to under 35 C.F.R. § 1.83(p)(5). In particular, the Office action indicates that "element 17, which is a detector, in Figure 2" was not mentioned in the description. Also, on page 2 of the action, the disclosure is objected to because of informalities. Specifically, the Office action indicates that the description of the elements of Figure 1 has incorrect numbers.

The specification has been amended to correct reference numeral indications. Reconsideration and withdrawal of the objections are respectfully requested.

Claim Rejections - 35 U.S.C. § 103

On page 2 of the action, claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,715,047 issued to Adamovsky in view of U.S. Patent No. 5,784,507 issued to Holm-Kennedy et al. ("Holm-Kennedy"). On page 4 of the action, claims 19-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holm-Kennedy. On page 5 of the action, claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adamovsky in view of Holm-Kennedy. Applicant respectfully traverses these rejections.

Independent claim 1 recites a moveable path changing optical element to provide the light in a second optical beam on

a second path and a position dependent optical element receiving the light in the second optical beam and changing a spectral characteristic of the light depending on the position of receipt of the light in the second optical beam by the position dependent optical element. Independent claim 19 recites a spatially varying optical unit adapted to receive light provided on a plurality of paths and varying a spectral characteristic of received light depending on the path of the light. Independent claim 29 recites means for receiving light on at least two of the second paths and changing a spectral characteristic of the light depending on the path of the light and position of the light incident on the means for changing a spectral characteristic. Independent claim 30 recites receiving the transferred light and changing a spectral characteristic of the light depending on the selected path and location of the received transferred light.

The action on page 3 indicates that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the mirror of Adamovsky with the etalon of Holm-Kennedy to facilitate the changing and selection of spectral characteristics of an incoming light beam based on where it impinges the etalon."

As an initial matter, Applicant notes that Holm-Kennedy states "[u]nfortunately, micromechanical structures tend to be notoriously fragile and susceptible to microphonics or vibrations… Further, the resultant structure is not a real time measuring device in that micromechanical devices do not measure energy at all optical wavelengths simultaneous, a serious

shortcomings for many applications." Holm-Kennedy, col. 2, lines 41-49. See also col. 3, lines 37-39 ("The incident intensity I_λ (x,y) from this top incident radiation is received across the upper surface of the filter 2, is distributed over the (x,y) dimension of the filter.") Thus, it would appear that Holm-Kennedy, if anything, teaches away from use of a device such as disclosed in Adamovsky.

Moreover, motivation, suggestion or teaching is not provided or suggested by the references, absent improper use of hindsight reconstruction by using the claimed invention as an instruction manual or guide to manipulate the references to arrive at the claimed invention. Also, there is no teaching or suggestion as to why or how to combine a scanning mode sensor detecting flow inhomogeneitites of Adamovsky with a spectrometer characterizing wavelength and energy distribution of incident optical radiation of Holm-Kennedy to result in the claimed invention, specifically as recited in claims 1, 19, and 29-30 absent improper hindsight reconstruction.

Furthermore, individually, each of the references provides a complete solution to a specific problem. Specifically, Adamovsky provides a complete solution in which a scanning mode sensor is provided for detection of flow inhomogeneitites. Likewise, Holm-Kennedy provides a complete solution in which a spectrometer characterizes wavelength and energy distribution of incident optical radiation and then processes such radiation. Neither reference provides a motivation, suggestion or teaching to improve upon the complete solutions of Adamovsky or the Holm-

Kennedy to arrive at the claimed invention. Thus, claims 1, 19 and 29-30 are believed to be patentable.

Claims 2-12 and 15-18 depend from independent claim 1. Claims 20-28 depend from independent claim 19. Accordingly, dependent claims 2-12, 15-18, and 20-28 are also believed patentable.

Amended Now Independent Claim 13

Claim 13 has been amended to incorporate claim 1 and intervening claim 12 and thus is now in independent form. Claim 13 recites "a fiber providing light in the first optical beam and receiving light with a spectral characteristic changed by the interferometer."

The action, on page 3, indicates that the use of an optical fiber to provide and receive light is well known. However, neither Adamovsky nor Holm-Kennedy describes a fiber providing light and the same fiber receiving light with a spectral characteristic changed by an interferometer, as recited in claim 13. Thus, Adamovsky and Holm-Kennedy, even if combined, do not describe or suggest the invention as recited in claim 13. Accordingly, claim 13 appears to be patentable, as does dependent claim 14.

New Claims 31-32

New claims 31-32, dependent on independent claims 29 and 30, respectively, describe other aspects of the invention. For example, claim 31 recites means for providing the light on the first path and receiving back the light with the changed

spectral characteristic and claim 32 recites receiving back the light with the changed spectral characteristic.

The cited references do not describe or suggest such an apparatus and method with the recited features in new claims 31-32. Also, since new claims 31-32 depend from respective independent claims 29-30 and contain additional limitations that, when considered as a whole are patentably distinguishable over the references of record, claims 31-32 are believed to be novel and unobvious.

New Claims 33-34

New claims 33-34 also describe other aspects of the invention. For example, independent claim 33 recites that a second fiber receives light directed from an optical circulator and provides the light to a movable mirror which reflects the light from the second fiber to the position dependent optical element which changes the spectral characteristic of the light from the movable mirror based on a path of the light from the movable mirror and a position of the light incident on the position dependent optical element and wherein the position dependent optical element reflects back the light with the changed spectral characteristic to the movable mirror that reflects the light with the changed spectral characteristic back into the second fiber with the movable mirror remaining stationary after reflecting light to the position dependent optical element. The cited references do not describe or suggest such an apparatus with the recited features in claim 33. Accordingly, new claim 33 appears to be patentable. New claim

34 describes other aspects of the invention and depends from independent claim 33. Since new claim 34 depends from claim 33 and contains additional limitations that, when considered as a whole are patentably distinguishable over the references of record, claim 34 is believed to be patentable.

New Claims 35-38

New claims 35-38 also describe other aspects of the invention. For example, independent claim 35 recites that a second fiber receives light directed from an optical circulator and provides the light to a movable mirror which reflects the light from the second fiber to the spatially varying optical element that changes the spectral characteristic of the light from the movable mirror based on a path of the light from the movable mirror and a position of the light incident on the position dependent optical element. Claim 35 further recites that the spatially varying optical element reflects back the light with the changed spectral characteristic to the movable mirror that reflects the light with the changed spectral characteristic back into the second fiber and that the spatially varying optical element has different reflectivities varying spatially across the optical element for different polarizations of light. The cited references do not describe or suggest such an apparatus with the recited features in claim 35. Accordingly, new claim 35 appears to be patentable. New claims 36-38 describe other aspects of the invention and depend from independent claim 35. Since new claims 36-38 depend from claim 35 and contain additional limitations that, when considered as a

whole are patentably distinguishable over the references of record, claims 36-38 are believed to be patentable.

New Claims 39-42

Furthermore, new claims 39-42 describe other aspects of the invention. For example, new independent claim 39 recites that an optical fiber provides light to a movable mirror that reflects the light to at least one of the plurality of waveguides which changes the spectral characteristic of the light from the movable mirror based on a path of the light from the movable mirror and position of the light incident on the at least one of plurality of waveguides and each of the plurality of waveguides has an etched broadband gratings with spacing between the gratings varying for each of the plurality of waveguides in that each of the plurality of waveguides transmits light at a wavelength different from that of other plurality of waveguides. The cited references do not describe or suggest such an apparatus with the recited features in claim 39. Accordingly, new claim 39 appears to be patentable. New claims 40-42 describe other aspects of the invention and depend from independent claim 39. Since new claims 40-42 depend from claim 39 and contain additional limitations that, when considered as a whole are patentably distinguishable over the references of record, claims 40-42 are believed to be patentable.

In view of the foregoing remarks, it is respectfully submitted that this application is now in condition for allowance. Accordingly, reconsideration of the application and allowance of claims 1-42 are respectfully requested. If the

Examiner should have any remaining questions or objections, a telephone interview to discuss and resolve these issues is respectfully requested.

Respectfully submitted,

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